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**TITLE: HAND AND FOOT EXERCISER**

**BACKGROUND OF THE INVENTION**

**1) Field of the invention**

The present invention relates to mechanical apparatus for making different exercises on the ground and, more particularly, to an apparatus comprising a base structure covered with a motionless cushion for supporting the user's body while its wrist or ankle is engaged to a belt attached to a steel cable which is arranged so as to be pulled in the desired direction.

**2) Description of the related art**

It has been recognized as desirable to provide a mechanical apparatus for exercising the muscles in general.

A search of prior art records has unveiled the following patents:

1. US 2,436,987 issued in 1948 to Bailleaux; and
2. US 3,117,782 issued in 1964 to Johnston.

The patent issued in 1964 to Johnston is probably the most relevant. As can be seen, the problem encountered with use of the physical exercise apparatus to Johnston is that, the tension of the steel wires is not adjustable

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when the user makes different exercises on the ground, and the longitudinal structure is not adjustable at different positions.

To overcome the above-mentioned problem, in accordance with the teachings of the invention, there is disclosed hand and foot exerciser, which is relatively simple and economical to manufacture.

#### **SUMMARY OF THE INVENTION**

In accordance with the present invention, the mechanical apparatus comprises a base structure covered with a motionless cushion for supporting the user's body while its wrist or ankle is engaged to a belt attached to a steel cable passing around a small pulley being engaged into an adjustable rotary part turning freely in all directions and being connected at a curved end of a vertical bar mounted of each side of one small pulley and blocked thereby a metal pin through a hole formed thereon a part member fixed to the base structure of the apparatus for adjusting the vertical bar according to the desired position.

Further, the steel cable extends inside the vertical bar so as to be able to turn around two small pulleys being mounted at the base structure of the apparatus and of a main large pulley fixed at a diagonal bar, and to be finally attached to a first end of an arm member and which the second end is

fixed at the base structure of the apparatus.

A spiral spring is connected approximately in middle of the arm member and welded to a rod connected to part member which may be moved along the perforated body member welded to the base structure and to be blocked through a hole thereby a metal pin for adjusting the tension of the spring.

#### **BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS**

The foregoing and other objects, advantages and characterizing features of the present invention will become clearly apparent from the ensuing detailed description of illustrative embodiments thereof, taken together with the accompanying drawings wherein like reference numerals denote like parts in the different figures:

Figure 1 is a perspective view of the mechanical apparatus for making different exercises on the ground.

Figure 2 is a profile view of the vertical bar having an adjustable rotary part provided with a small pulley by which a steel wire is pulled in the desired direction.

Figure 3 is a profile view showing the vertical bar fixed at a desired position.

Figure 4 is a top view of the base structure and the assembly of the

components from the mechanical apparatus.

Figure 5 is a top view of the base structure from the apparatus showing the adjustment of the spring connected to an arm member in a different position.

Figure 6 is a profile view of the mechanism allowing to adjust the tension of the spring at a desired position.

Figure 7 is a profile view of the main large pulley fixed at a diagonal bar connected to the base structure from the mechanical apparatus.

Figure 8 is a profile view of the main large pulley allowing to the steel wire to turn two times around of the pulley by giving an effect of pulley's arc.

Figures 9a, b, c and d, are the side elevational views illustrating the operation of the present invention by a user .

#### **DETAILED DESCRIPTION OF THE INVENTION**

Referring more specifically to figs. 1 to 3, the present invention is a mechanical apparatus having a base structure (10) covered with a motionless cushion (16) for supporting the user's body while its wrist or ankle is engaged to a belt (17) attached to a steel cable (5) passing around a small pulley (13) being engaged into an adjustable rotary part (12) turning freely in all directions and being connected at a curved end of a vertical bar

(11) mounted of each side of one small pulley (2) and blocked thereby a metal pin (14) through a hole formed thereon a part member (19) fixed to the base structure (10) of the apparatus for adjusting the vertical bar (11) according to the desired position.

As illustrated to figs. 4 to 8, the steel cable (5) extends inside the vertical bar (11) so as to be able to turn around two small pulleys (2) being mounted at the base structure (10) of the apparatus and of a main large pulley (4) fixed at a diagonal bar (18), and to be finally attached to a first end of an arm member (1) and which the second end is fixed at the base structure (10) of the apparatus.

A spiral spring (6) is connected approximately in middle of the arm member (1) and welded to a rod (7) connected to a part member (8) which may be moved along the perforated body member (3) welded to the base structure (10) and to be blocked through a hole thereby a metal pin (9) for adjusting the tension of the spring (6).

As illustrated to figs. 9a, 9b, 9c and 9d, there is shown the operation of the mechanical apparatus by a user .

Accordingly, while the preferred embodiments of the invention have been described above, it will be recognized and understood that various

modifications may be made in the invention and the appended claims are intended to cover all such modifications which may fall within the spirit and scope of the invention.

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